NOV/FY06

US ARMY GARRISON YUMA

Arizona

Army Defense Environmental Restoration Program Installation Action Plan

Final 07 August 2006

Table of Contents

Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Installation Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, U.S. Army Environmental Center (USAEC), US Army Garrison Yuma (YPG), Installation Management Agency-Southwest Regional Office (IMA-SWRO), executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this IAP at the IAP Workshop held November 14 – 17, 2005:

Company/Installation/Branch
Argonne National Laboratory for YPG
Arizona Department of Environmental Quality (ADEQ)
Engineering and Environment, Inc. for USAEC
IMA-SWRO
Jason Associates for YPG
USAEC
VERSAR for USAEC
YPG

Acronyms & Abbreviations

ADEQ	Arizona Department of Environmental Quality
AEDB-R	Army Environmental Database-Restoration (formerly DSERTS)
AST	Above Ground Storage Tank
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CDH	Castle Dome Heliport
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CTC	Cost to Complete
CWA	Chemical Warfare Agent
DOD	Department of Defense
DPW	Department of Public Works
ER,A	Environmental Restoration, Army (formerly DERA)
FS	Feasibility Study
FSP	Field Sampling Plan
FWDA	Former Waste Disposal Area
FY	Fiscal Year (October 1-September 30)
IAP	Installation Action Plan
ICE	Internal Combustion Engine
IMA-SWRO	Installation Management Agency-Southwest Regional Office
IRA	Interim Remedial Action
IRP	Installation Restoration Program
K	thousand
kg	kilogram
LAAF	Laguna Army Airfield
LUC	Land Use Controls
LTM	Long-term Management
MC	Munitions Constituents
MEC	Munitions and Explosives of Concern
mg	milligrams
mm	millimeter
MMRP	Military Munitions Response Program
NFA	No Further Action
NPL	National Priority List
OU	Operable Unit
PAH	Polynuclear Aromatic Hydrocarbons
PA/SI	Preliminary Assessment/Site Inspection
POL	Petroleum, Oil & Lubricants
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operation)
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design

Acronyms & Abbreviations

REM	Removal
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SAP	Sampling Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
SRL	Soil Remediation Level
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TPH	Total Petroleum Hydrocarbons
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USAEC	US Army Environmental Center
USAEHA	US Army Environmental Hygiene Agency (replaced by USACHPPM)
USATHAMA	US Army Toxic and Hazardous Material Agency (replaced by USAEC)
USEPA	US Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
YPG	US Army Garrison Yuma
YTC	Yuma Test Center

Installation Information

Installation Locale: YPG is located in the extreme southwestern portion of the State of Arizona, bordered on the west by the Colorado River. The installation is located in a very remote portion of Yuma County with the nearest major population center, the city of Yuma, approximately 25 miles to the south southwest. The population of the city of Yuma is approximately 77,000 inhabitants. YPG is one of Department of Defense's (DOD's) largest installations, approximately 830,000 acres in size or roughly 1,300 square miles. Comparatively, it is slightly larger than the State of Rhode Island. The predominant land use of adjacent lands is US Department of the Interior restricted use withdrawn lands and the Kofa Wildlife Refuge.

Installation Mission: YPG is a general purpose facility with over 50 years experience testing weapon systems of all types and sizes in a joint environment. The proving ground conducts tests on medium and long-range artillery, aircraft target acquisition equipment and armament, armored and wheeled vehicles, a variety of munitions, and personnel and supply parachute systems. Testing programs are conducted for all United States military services, friendly foreign nations and private industry.

YPG is the Army's center for desert natural environment testing and the management of cold weather testing at the Cold Regions Test Center, Alaska, and tropic testing at the Tropic Test Center, various locations. Yuma Proving Ground is one of twenty-two major test ranges that comprise the DOD Major Range Test Facility Base.

Lead Organization:
Installation Management Agency, Southwest Region

Lead Executing Agencies:
Investigation Phase: YPG
Remedial Action Phase: YPG

Regulator Participation:
Federal: U.S. Environmental Protection Agency, Region IX
State: ADEQ, Federal Facilities Unit

National Priorities List (NPL) Status: No NPL sites have been identified at YPG.

Installation Restoration Advisory Board (RAB)/Technical Review Committee /Technical Assistance for Public Participation Status: No RAB established. Yuma will sample for community interest in 2006.

Installation Program Summaries:

IRP

Primary Contaminants of Concern: Petroleum Hydrocarbons, BTEX, Metals, Chemical warfare agent (CWA) degradation compounds
Affected Media of Concern: Groundwater, Soil
Estimated Date for Remedy in Place (RIP)/Response Complete (RC): 2005/2005
Funding to Date (up to Fiscal Year (FY) 05): $10,152,000
Current Year Funding (FY06): $ 638,000
Cost to Complete (CTC): $5,079,000

MMRP

Primary Contaminants of Concern: Metals, Munitions and Explosives of Concern (MEC), Munitions Constituents (MC)
Affected Media of Concern: Groundwater, Soil
Estimated Date for RC: 2014
Funding to Date (FYxx-FY05): $435,300
Current Year Funding (FY06): $0
Cost to Complete (CTC): $8,432,000

Installation Historic Activity

The Army Ordnance Corps first established the Yuma Test Station for the testing of munitions in 1952. In 1961 it was transferred to the U.S. Army Test and Evaluation Command, changed its name to Yuma Proving Ground, expanded its mission for the testing of all types of military materiel and has been in continual operation ever since. The primary focus of the testing is covered by five major commodity areas: (1) Aircraft Armament, (2) Air Delivery, (3) Track and Wheeled Vehicles, (4) Munitions and Weapons, and (5) Environmental Testing. The major tenant activity includes the First Special Warfare Training Group (Airborne) Free Fall School, which relocated in 1995.

IRP

- Prior Year Progress: In FY 2005 groundwater monitoring at five sites: YPG 01, YPG 10, YPG 31, YPG 32 and YPG 45 continued. Using prior year funds Soil Vapor Extraction (SVE) wells were installed at YPG 10. Using prior year funds, two Internal Combustion Engines (ICEs) were purchased and one ICE was refurbished for the SVE system. A remedial design/remedial action (RD/RA) document required by ADEQ as a companion document to the YPG 10 Decision Document was drafted and submitted for ADEQ review in April and comments were received in September. AGY is working on preparing a Operations and Maintenance Plan for the SVE system as requested in September comments. In the interim, ADEQ agreed that once an air permit is obtained from ADEQ, the SVE system can be turned on.

  For the remaining sites, YPG drafted a site-wide Decision Document (DD) describing the sites and committing to groundwater monitoring and LUC monitoring as appropriate. ADEQ requested YPG to break sites out of the site-wide document and draft multiple DDs as follows:

  DD 1 YPG 01 Chemical Lab. At Building 2500

  DD 2 YPG 03 (Bldg 2060) No Further Action (NFA)
  YPG 13f (Bldg 3021) NFA
  DD 3 YPG 31 West Environmental Test Area
  YPG 32 Former Waste Disposal Area
  DD 4 YPG 02 Removed Holding Tank (Bldg 2060)
  DD 5 YPG 11 Former Pesticide Mix/Storage Bldg.
  DD 6 YPG 37 77th Explosive Ordnance Disposal Site
  DD 7 YPG 45 Bldg. 506
  DD 8 YPG 13b Wash Pad 1 (south)-Castle Dome
  YPG 13c Wash pad 2 (north)-Castle Dome
  YPG 13d Waste Basin-Castle Dome
  YPG 13e Septic Tank Leach Field-Kofa
  YPG 23 Wash Rack Lagoon-Kofa
  YPG 25 Septic Tank Leach Field (North)- Castle Dome
  YPG 26 Septic Tank Leach field (South)-Castle Dome

Finally, using prior year funds, a fence was installed at YPG 32.

- Future Plan of Action: Draft required DDs and associated RD/RA plans. Operate SVE system and continue groundwater and LUC monitoring.

MMRP

- Prior Year Progress: During the SI phase conducted in FY05, it was decided to combine the two MMRP sites, so YPG-001-R-01 was listed as closed in March of 2005 and all MMRP issues will be addressed under YPG-002-R-01. The recommendation of the SI was to further evaluate the site with a RI to identify the nature and extent of the MEC in the area.
- Future Plan of Action: The installation plans to complete the Supplemental SI and Remedial Investigations/ Feasibility Studies (RI/FS) by 2012 and execute follow on phases/actions as required.

US ARMY GARRISON YUMA

Installation Restoration Program

Total Army Environmental Database-Restoration (AEDB-R) Sites/AEDB-R sites with RC: 42/42

Different Site Types:

2 Burn Area
1 Fire/Crash Training Area
2 Contaminated Soil Piles
2 Disposal Pit/Dry Well
3 Firing Range
4 Landfill
2 Pesticide Shop
1 Storage Area
5 Surface Impoundment/Lagoon
2 Underground Storage Tank
1 Unexploded Munitions/Ordnance
3 Contaminated Buildings
2 Chemical Disposal
5 Leachfield
1 Industrial Discharge
2 Maintenance Yard
1 Washrack
1 Spill Site Area
2 Explosive Ordnance Disposal Area

Most Widespread Contaminants of Concern: Petroleum Hydrocarbons, BTEX, Metals, CWA degradation compounds

Media of Concern: Soil, Groundwater

Completed Removal (REM)/Interim Removal Action (IRA)/RA:

IRA	heating fuel tank removal for YPG-45 (FY 89) $40K
IRA	asphalt cap and monitoring for YPG-45 (FY 92) $27K
IRA	SVE ICE at YPG-10 (FY01)
IRA	fencing, signage, LUC at YPG-32
RA	multiple sites with LUC (YPG-01, 02, 11, 13b, 13c, 13d, 13e, 23, 25, 26, 31, 32, 37, 45) (FY05)
RA	SVE at YPG-10 (FY05)
REM	contaminant source removal for YPG-08 (FY88) $5K
REM	contaminant source removal for YPG-09 (FY90) $15K
REM	contaminated soil removal for YPG-38 (FY94) $50K
REM	contaminated material removed from YPG-31 (FY95)

Total IRP Funding:

Prior Years (up to FY05):	$10,152,000
Current Year Funding (FY06):	$ 638,000
Future Requirements (FY07+):	$5,079,000
Total:	$15,869,000

Duration of IRP:

Year of IRP Inception:	1993
Year of IRP RIP/RC:	2005/2005
Year of IRP Completion including LTM:	Indefinite

IRP Contamination Assessment Overview

A number of regulatory agencies (ADEQ, USEPA Region IX) and US Army agencies (US Army Environmental Hygiene Agency [USAEHA], US Army Toxic And Hazardous Materials Agency [USATHAMA]) have identified potential release sites from past practices at AGY. In 1978, USATHAMA identified 16 potential release sites. In 1988, USAEHA identified 62 potential release sites, referred to in the USAEHA report as Solid Waste Management Units (SWMUs) [USAEHA 1988]. As a result of the USATHAMA and AEHA evaluations, investigation and cleanup of selected SWMUs was conducted. The Installation Restoration Program was established at YPG in 1993.

Yuma Proving Ground has 42 sites listed in the AEDB-R. These sites include industrial wastewater surface impoundments, sanitary and construction debris landfills, leach fields, storage areas, fire training sites, and ordnance treatment sites. All 42 sites will be remedy in place (RIP) or response complete (RC) by the end of FY05 with five sites requiring funding for Remedial Action (Operation) RA(O) or LTM involving groundwater monitoring and remediation system operations and LUC measures. Eight additional sites will be addressed under an existing site-wide LUC system

The Center for Health Promotion and Preventive Medicine (USACHPPM) conducted relative risk site evaluations at 19 “Not Evaluated” AEDB-R sites in late January 1997. Fifteen sites were scored as low relative risk, three sites were scored as medium relative risk, and one was identified as NFA under the IRP. A number of sites were not sampled because of presumed risks associated with CWA and/or ordnance and explosives.

The primary contaminants of concern at YPG are Petroleum/Oil/Lubricants (POL) and heavy metals. At YPG, the transportation method with greatest potential to cause the conveyance of contaminants off-site is the groundwater resource. Remedial investigations, plans and actions have been initiated for this risk. The sites of environmental concern involving groundwater are the following: YPG-01, 10, 31, 32, and 45.

Finally, eight sites (YPG-11, -13b, -13c, -13d, -23, -13e, -25, and –26 were found to have slightly elevated pesticide (YPG-11) or arsenic concentrations (the remaining seven sites) in comparison to site background levels and between 1.2 to 1.8 times higher than the human health screening level. However, because of the conservatively safe default assumption of 100% bioavailability, and the industrial use scenarios at YPG, the magnitude of the arsenic exceedances is not sufficient to warrant further analysis in a baseline assessment of arsenic risks to human health at these sites. Left implicit in the RI Report is YPG’s position that the slight arsenic State Regulatory Limit (SRL) exceedences do not warrant any further action other than LUCs. Arsenic exceedances at these sites should be considered in light of the uncertainties inherent in current risk assessment approaches and the frequently higher cleanup levels for arsenic in soil used at other Superfund sites. Use of more realistic exposure frequencies (rather than the default 350 days per year exposure frequency) would likely result in seven sites not requiring further

action. Furthermore, use of a more realistic bio availability (than the 100% bio availability default) would result in seven sites not requiring further action.

At YPG-10 a DD was approved. This DD documents a presumptive response strategy for source control (in this case contamination present in the vadose zone) and thus the indirect improvement of groundwater quality. The Focused Feasibility Study (FFS) advocates implementing groundwater remediation in a phased approach, with information gained from earlier phases used to refine subsequent investigations, objectives or actions. The strategy outlined for the Fuel Bladder Test Site begins with an initial source removal phase using soil vapor extraction technology. During this initial phase, groundwater monitoring would continue to gather information on contamination trends and natural attenuation parameters. During the planned 4 years of RAO associated with this action, contamination would be removed from the vadose zone and groundwater quality would improve.

Based upon the potential risk to human health, remedial investigation activities were initiated in the fall of 1997 for three sites used for the testing/disposal of CWAs: YPG-01, Old Chemical Laboratory (Building S-2500); YPG-31, West Environmental Test Area, and YPG-32, Former Waste Disposal Area. Because of the presumed risk to site workers, no intrusive sampling has occurred or is planned at these sites. CWA degradation compounds have been detected at YPG-31 in passive soil gas points in the past. Monitoring wells were installed at two of the sites and were sampled as part of the IRP. A water supply located down gradient of YPG-31 was sampled. CWA degradation compounds were detected in one well from one round of samples at YPG 01 but not in a duplicate sample from the same well. CWA degradation compounds were not detected in any well at YPG-01 in the subsequent two sampling episodes in 2001. Furthermore, no CWA degradation compounds were detected in any of the four monitoring wells in thirteen subsequent sampling episodes through 2005. CWA degradation compounds have not been detected from groundwater monitoring wells installed at the Former Waste Disposal Area YPG-32.

In 2005, MPA was detected in the groundwater samples collected from YPG-31 and YPG-32, but the detections were at levels below the reporting limit, i.e. they were estimated concentrations. Further investigation by Argonne's Quality Assurance Officer during an annual laboratory audit found that there is another compound with a similar retention time that can act as a surrogate for MPA at low concentrations. As MPA has not been detected in two subsequent sampling events, it is believed that the detections in 2005 were false positives. In 2006, all CWA samples will be split between two different laboratories as an additional quality assurance check.

Operable Unit (OU) to AEDB-R Conversion
OU 1
YPG-10 Fuel Bladder Test Site
YPG-43 Former Fire Training Pit
YPG-45 Building 506 Underground Storage Tank (UST) Fuel Release

OU 2
YPG-01 Old Chemical Laboratory (Building S-2500)
YPG-02 Chemical Waste Holding Tank (Building S-2060)
YPG-31 West Environmental Test Area
YPG-32 Former Waste Disposal Area
YPG-37 77th Explosive Ordnance Disposal Area

OU 3
YPG-11 Former Pesticide Mix/Storage Facility Building T-430
YPG-13b Washpad 1 Castle Dome Heliport
YPG-13c Washpad 2 North Castle Dome Heliport
YPG-13d Waste Basin at Castle Dome Heliport
YPG-23 Washrack/Lagoon (west) at Kofa Building 3490

OU 4
YPG-03 Septic Tank Leachfield near Building 2060
YPG-13a Septic Tank Lagoon Castle Dome Heliport
YPG-13e Septic Tank Leachfield (East) Kofa Building 3490
YPG-13f Septic Tank Leachfield Building 3021 Laguna Army Airfield (LAAF)
YPG-25 Septic Tank Leachfield (North) at Castle Dome Heliport
YPG-26 Septic Tank Leachfield (South) at Castle Dome Heliport

IRP Cleanup Exit Strategy:
The cleanup exit strategy for the YPG sites involves a combination of short-term remedies and long-term monitoring and Land Use Controls (LUCs). Pursuant to an approved Decision Document, YPG-10 will require the installation and operation of a soil vapor extraction system. This internal combustion engine-based SVE system is expected to be operated for a period of approximately five years. Modeling documented in the YPG-10 focused feasibility study predicts that after five years, Arizona state soil cleanup levels for constituents of concern will be achieved in vadose zone soil. The ongoing cleanup of the vadose zone soil will augment intrinsic remediation and will likely result in an improvement of groundwater quality, which currently exceeds drinking water maximum contaminant levels for benzene. During the five year remedial action operations, the remedy and the existing monitoring well network will be monitored. Upon completion of the RAO, groundwater quality will continue to improve as a result of intrinsic remediation resulting in a response complete within the planning horizon documented in this IAP.

Sites YPG 01, YPG 31, YPG 32 and YPG 45 will require periodic groundwater monitoring. The cleanup strategy for these sites involves periodic groundwater monitoring to substantiate the already documented fact pattern that these sites have had little or no impact on groundwater quality. In addition, the long-term strategy for these four sites involves monitoring using LUCs. Per a request by ADEQ in the November 2005 IAP meeting, one additional well will be installed at YPG 31 and will be monitored as part of the periodic monitoring effort. The strategy for the remaining sites involves LUC monitoring with a number of LUCs including adherence to an existing YPG digging permit program.

Previous Studies

1978
- Installation Assessment, USATHAMA, 1978

1988
- Initial Installation Assessment Update, US Army Environmental Hygiene Agency (USAEHA), 1988-Jul
- Interim Final Report Groundwater Contamination Survey No. 38-26-0882-89, Evaluation of Solid Waste Management Units, Yuma Proving Ground, US Army Environmental Hygiene Agency (USAEHA), 1988-Aug

1993
- Lead Arsenic Site Closure Report, 192 (YPG-38) Mobility Test Area and Laguna Air Field Lagoons, Environmental Baseline Study, 1993

1994
- POL Investigation Plan, Gutierrez-Palmenberg, Inc, 1994
- DPG Tech Escort Report, On Removal of Liquid Filled Vial from YPG-31, 1994-Nov

1995
- POL Site Quality Assurance/Quality Control QMIS Report, 1995-Apr

1997
- Hazardous and Medical Waste Study No. 37-EF-5481-97 Relative Risk Site Evaluation, Yuma Proving Ground, US Army Center for Health Promotion and Preventive Medicine (USACHPPM), 1997-Jan

1998
- Site Characterization Report for the POL Bladder Test Spill Site, US Army Yuma Proving Ground, Gutierrez-Palmenberg, Inc, 1998-Feb
- Draft Remedial Investigation Work Plan for Yuma Proving Ground, Argonne National Laboratory, 1998-Nov

1999
- Resource Conservation and Recovery Act (RCRA) Facility Assessment, US Army YPG Final Report, USEPA Region 9, 1999-Apr
- Draft Final Remedial Investigation Work Plan for Yuma Proving Ground, Argonne National Laboratory, 1999-May
- Final Building 506 Investigation, Yuma Proving Ground, CDM Federal Services, 1999-Jul
- Draft Final Remedial Investigation Sampling and Analysis Plan for Selected Sites at Yuma Proving Ground, Volume 1: Field Sampling Plan and Volume: Quality Assurance Project Plan, Argonne National Laboratory, 1999-Sep

Previous Studies

2000

- Draft Community Involvement Plan (internal draft), Argonne National Laboratory, 2000-Feb
- Draft Final Community Involvement Plan (internal draft), Argonne National Laboratory, 2000-Apr
- Remedial Investigation Sampling and Analysis Plan for Selected Sites at Yuma Proving Ground, Volume1: Field Sampling Plan and Volume 2: Quality Assurance Project Plan, Argonne National Laboratory, 2000-May
- Fuel Bladder Test Site Soil Vapor Extraction Work Plan, Argonne National Laboratory, 2000-Jul
- Draft Preliminary Risk Evaluation for Operable Units 3 and 4, Yuma Proving Ground, Argonne National Laboratory, 2000-Aug
- Remedial Investigation/Feasibility Study Work Plan for Yuma Proving Ground, Argonne National Laboratory, 2000-Dec
- Fuel Bladder Test Site Soil Vapor Extraction Report, Argonne National Laboratory, 2000-Dec

2001

- Draft Remedial Investigation Report for selected sites at Yuma Proving Ground, Argonne National Laboratory, 2001-June
- Action Memorandum Interim Remedial Action at the Fuel Bladder Test Site (YPG-10) at Yuma Proving Ground and LaPaz Counties; App'v by ADEQ, Argonne National Laboratory, Submitted 2001-Mar; Approved 2001-Jul
- Work Plan for Sample Collection and Evaluation to Determine Natural Background Concentrations of Inorganic Constituents in Soils at Yuma Proving Ground, Argonne National Laboratory, 2001-Oct
- Soil Vapor Extraction Pilot Test Building 506 Underground Storage Tank Site, Argonne National Laboratory, 2001-Oct
- Release Assessment for Solid Waste Management Units at Yuma Proving Ground, Argonne National Laboratory, 2001-Nov

2002

- Draft Final Preliminary Environmental Investigation for the Chemical Toxic Laboratory, Western Environmental Test Area, and Chemical Toxic Waste Disposal Area, Yuma Proving Ground, Argonne National Laboratory, 2002-Mar
- Background Concentrations of Inorganic Constituents in Soils at Yuma Proving Ground, Argonne National Laboratory, 2002-Mar
- Background Concentrations of Inorganic Constituents in Soils at Yuma Proving Ground, Argonne National Laboratory, 2002-Mar
- Remedial Investigation Report for Selected Sites at Yuma Proving Ground, Argonne National Laboratory, 2002-Jul

2003

- Focused Feasibility Study for Subsurface Soil and Groundwater at the Fuel Bladder Test Site, Yuma Proving Ground, Argonne National Laboratory, 2003-Jan

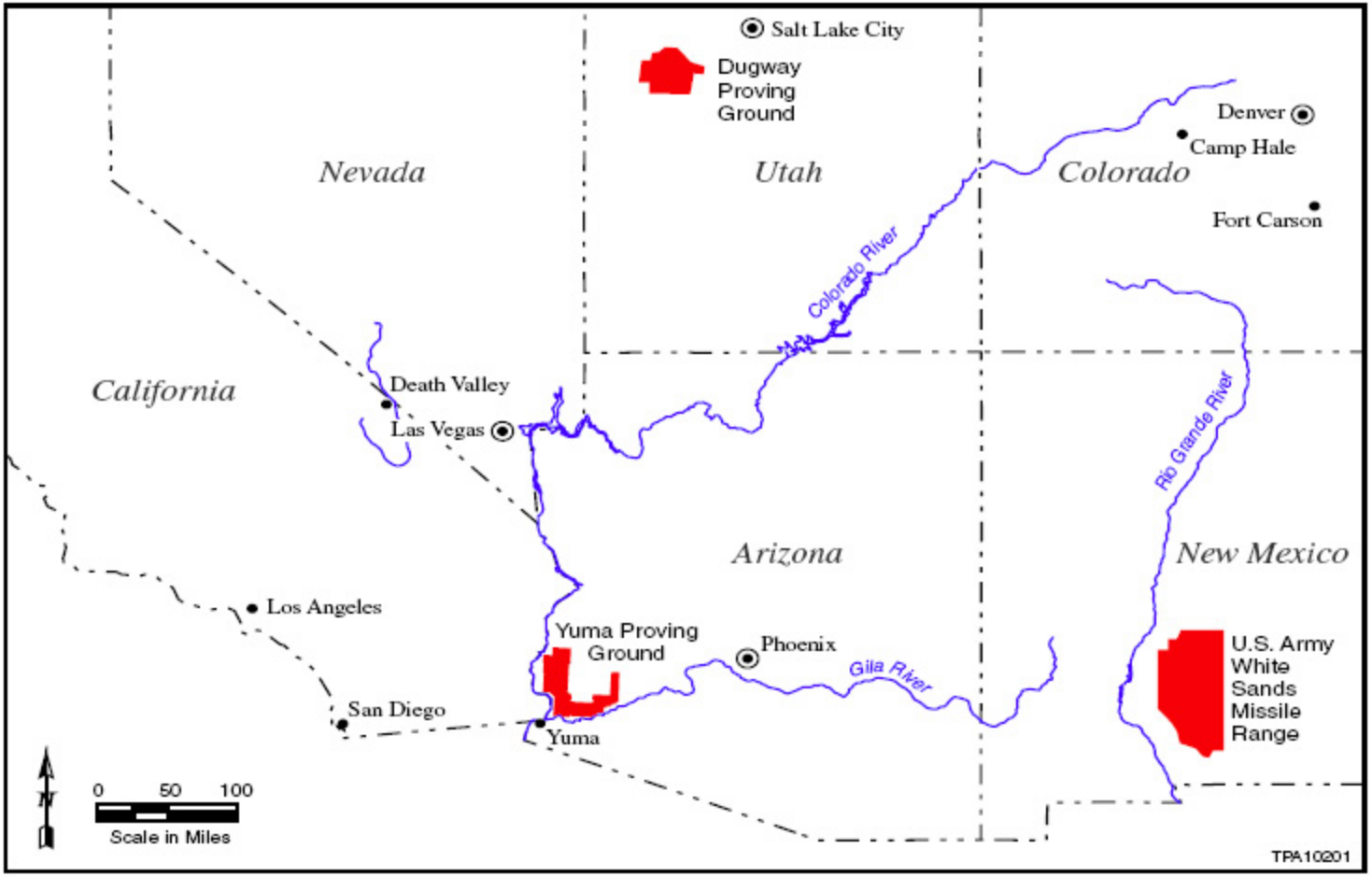
- Draft (December 2002) and Final Work Plan for Laboratory and Field Feasibility Testing, In-Situ Ozone Treatment of Petroleum Hydrocarbons at Building 506 Underground Storage Tank Site, Argonne National Laboratory, 2003-Feb
- Refinement of the Screening Risk Assessment for Selected Sites at Yuma Proving Ground, Argonne National Laboratory, 2003-Feb

2004

- Final Remedial Investigation Report for selected sites at Yuma Proving Ground, Argonne National Laboratory, 2004-Mar
- Draft Focused Feasibility Study for Subsurface Soil and Groundwater at the Building 506 Site, Yuma Proving Ground, Arizona, Argonne National Laboratory, 2004-July

2005

- Final Focused Feasibility Study for Subsurface Soil and Groundwater at the Building 506 Site, Yuma Proving Ground, Arizona, Argonne National Laboratory, 2005-September


Salt Lake City
Dugway Proving Ground
Nevada
Utah
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Denver
Camp Hale
Fort Carson
Colorado River
California
Death Valley
Las Vegas
Rio Grande River
Arizona
New Mexico
Los Angeles
Yuma Proving Ground
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Installation Restoration Program Site Description

YPG-01
OLD CHEMICAL LABORATORY (BLDG. S-2500)

SITE DESCRIPTION

Building S-2500, located at the YPG Yuma Test Center, is a laboratory that is currently being used as a soil processing laboratory. The building was likely constructed sometime after April 1954, based on a review of aerial photographs and installation blueprints. A blueprint titled "Basic Information Maps, General Storm Drainage, Office of the Post Engineer, Yuma Test Station, 1958," depicts Building S-2500 labeled as "Chem. Corps. Desert Test Lab" within an area approximately 1500' by 400' designated as "Chemical Test Team Area". Chemical agent detection kit challenge tests and agent purity analyses were conducted from the mid-1950s until 1969 within glove boxes and/or fume hoods within the laboratory. In 1969, chemical agent activity stopped at the site. Some wastes were disposed into what is referred to as a "leaching well for acid waste" in YPG Drawing No. 71-07-12 (revised 1 Feb. 65). Solid materials were reportedly transported to the Former Waste Disposal Area (YPG-32) [USAEHA August 1988]. No spills were reported in the archival documents reviewed.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN:
Chemical Agent Breakdown Products and Solvents

MEDIA OF CONCERN:
Groundwater, Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI/FS	199708	200409
LTM	200410	202909

RC DATE: 200409

A "leaching well" identified in archival blueprints could not be located with geophysical investigation techniques. CWA degradation compounds were detected in passive soil gas monitors (Argonne National Laboratory 1998). Additional passive soil gas monitors were deployed in January 2000 as part of the Field Sampling Plan (FSP) and CWA degradation compounds were detected at two of 26 locations.

Four monitoring wells have been installed as part of the RI activities. Benzene and toluene were detected in the sample collected from monitoring well MW1 at concentrations of 0.6 μg/l and 0.9 μg/l respectively. Bromoform and methyl phosphonic acid, a CWA degradation compound, were also detected in monitoring well 2 but not in a duplicate sample collected from the same well. However, no CWA degradation compounds were detected in any of the 4 monitoring wells in nine subsequent sampling episodes through 2003 (Argonne, March 2004). LUCs were completed and included signage around the building. Continue to use the site as a soil sample preparation laboratory. Continue to control access to Building S-2500.

YPG-01
OLD CHEMICAL LABORATORY (BLDG. S-2500)

CLEANUP STRATEGY

Complete decision document and implement recommended LUCs. Four existing wells will continue to be sampled on a semi-annual basis through 2008. They will be sampled on an annual basis starting in 2009 until 2029. A letter report summarizing analytical results regarding the presence/absence of CWA degradation and volatile organic compounds (VOC) (in accordance with the decision document) will be submitted to ADEQ.

YPG-02
CHEMICAL WASTE HOLDING TANK BLDG S-2060

SITE DESCRIPTION

Bldg. 2060 is located at the Mobility Test Area complex. Building 2060 housed both a chemical laboratory and a petroleum laboratory (USATHAMA 1978). Propellants, explosives and gun tube deposits were analyzed. Residual material was containerized and given to YPG Explosive Ordnance Disposal personnel for disposal on the range by open burning. Reportedly, chemicals were neutralized or diluted and poured into the lab's holding tank. The holding tank was periodically pumped out and the sludge was taken to a landfill for disposal. The petroleum laboratory was used to perform physical and chemical tests on fuels and lubricants to determine conformance to specifications, lubricant capabilities, octane rating, vapor lock potential, and performance in test engines. Residual petroleum products from tests were collected for reuse. General laboratory chemicals were dumped into a waste holding tank after neutralization and/or dilution. The residues were later collected for disposal (USATHAMA 1978). The holding tank located on the northwest side of Bldg. S-2060 could have received residuals from either the Petroleum Laboratory, or the Chemical Laboratory.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Solvents, Heavy Metals, Explosives-Related Compounds and Petroleum

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI/FS	199811	200309

RC DATE: 200309

The tank was first used in 1954. It is unknown when the tank ceased being used for storing laboratory residuals. However, the tank contents were examined during the RI and the tank appeared to contain heating fuel. As part of the RI, samples were collected from the tank and from soil surrounding the tank. No VOCs, semi–volatile organic compounds (SVOCs) or total petroleum hydrocarbons (TPHs) were detected in subsurface soils (Argonne July 2002).

The tank was excavated and removed in FY02. Soil samples collected beneath the tank after removal contained TPHs and benzo (a) pyrene, above the residential SRL, with maximum concentrations at approximately 50% of the non-residential SRL. The Remedial Investigation Report determined that YPG-02 did not represent a risk to human health or the environment. (Argonne Feb 2003).

CLEANUP STRATEGY

A NFA decision document will be prepared to for the site.

YPG-03
SEPTIC TANK LEACHFIELD NEAR BLDG. 2060

SITE DESCRIPTION

Prior to the advent of the base-wide sanitary wastewater collection/treatment system, wastewater from Bldg. S-2060 was discharged to a septic tank leach field (see description of YPG-02 on page 20). The capacity of the septic tank is unknown. The distribution line extends approximately 400 feet northwest of the tank to a leach field located beyond a road used as a vehicle obstacle course. The septic tank was removed (April 2002). Based upon the RI results (Argonne July 2002) and the risk refinement step (Argonne February 2003), YPG-03 does not present a risk to human health or the environment.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Solvents, Heavy Metals, Explosives-Related Compounds and Petroleum Hydrocarbons

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI	199809	200309

RC DATE: 200309

CLEANUP STRATEGY

In November 2004, a NFA decision document was submitted to USAEC. This document is expected to be finalized in 2006.

YPG-10

FUEL BLADDER TEST SITE (PAGE 1 OF 2)

SITE DESCRIPTION

Portable fuel bladders were tested at a site 1/2 mile east of the YPG Yuma Test Center during the mid-1960s until about 1972. The site contains twelve pits. From historical records, seven were bermed test pits, four were used as borrow areas during construction and one additional pit (Pit 12) had no information regarding its use. In addition to the pits, there are two depressions (termed the North and South Depression(s)) where above ground, steel, fuel tanks were used to supply the fuel used for bladder testing. Large fuel bladders designed for field deployment were challenge tested within the bermed areas. The berms and above ground storage tanks, which are no longer present at the site, were positioned within a fenced area that is approximately 30 acres in extent. Spillage of greater than 250,000 gallons of leaded gasoline was documented during the period of test activity. FSP-associated investigation activities and past investigations have confirmed the presence of benzene/xylene/toluene related compounds in the vadose zone and in groundwater (Argonne 2004). Consistent with the technical approach in the ADEQ-approved RI work plan and SAP, a presumptive remedy of SVE was proposed to ADEQ in October 2001. An IRA that included operation of a dual engine soil vapor extraction unit has been performed to determine design parameters for a full scale ICE SVE system for YPG-10.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Lead, BTEX

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	199108	199201
SI	199208	199309
RI	199404	200407
RD	200403	200509
IRA	199909	200403
RA(C)	200409	200509
RA(O)	200506	202109

RIP DATE: 200509
RC DATE: 202109

Risk refinement steps have identified a potential unacceptable risk to human health and ecological resources (Argonne 2004). A FFS was completed and submitted to ADEQ in 2003. An RI report
was completed in March 2004. Obtained an agreement from ADEQ to prepare final DD that integrated the SVE system into a Final DD. All parties signed a decision document for subsurface and vadose zone by December 9 2004. The RD/RA plan was submitted to ADEQ for review and approval in April and comments were received in September 2005. ADEQ requested an Operations and Maintenance plan for the SVE system. The installation is working on creating that manual and will be submitted in December 2005. The installation is in the process of applying for a Title V Air Operating Permit that will include the SVE units. The application was submitted in June 2006. The Air Quality Division of ADEQ accepted a revised General Permit Application covering the old and two new SVE units in February 2006.

Prior year funds were used to purchase capital equipment, install vapor extraction wells, and make site improvements.

FUEL BLADDER TEST SITE (PAGE 2 OF 2)

CLEANUP STRATEGY

Operate SVE system and continue quarterly groundwater monitoring until a trend is recognized and natural attenuation can be modeled. Installation-wide five-year review will be funded under this site.

YPG-11
FORMER PESTICIDE MIX/STORAGE BLDG T-430

SITE DESCRIPTION

The Bldg. 430 is functioning as a storage building and is located within the YPG Public Works compound. Prior to 1980, the building was used for the storage of a variety of bulk insecticides, herbicides, and associated chemical application equipment. As part of the FSP-related investigation activities samples were collected on the edge of the building foundation and through the existing concrete floor. Eight pesticide compounds were detected in one or more soil samples collected at the site. Inorganics were detected at concentrations in excess of the Arizona SRL of 10 milligrams/kilogram (mg/kg), but less than the Groundwater Protection Limits. Pesticide detects are limited to samples collected from the east and south of Bldg 430. No complete exposure route exists between contaminated areas of the site and site workers, the only receptors that have access to the site. Dieldrin is elevated in soil beneath the building, thus limiting exposure to human or ecological receptors. Based upon the RI results (Argonne July 2002) and the risk refinement step, YPG-11 does not represent a risk to ecological resources (Argonne February 2003).

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Heavy Metals, Pesticides, Insecticides, Herbicides, Hydrocarbons

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	197810	197812
RI/FS	199811	200409
RA(C)	200404	200409

RC DATE: 200409

CLEANUP STRATEGY

Site will be addressed by a LUC Decision Document. The DD is anticipated to be finalized by the end of FY06. Contingent upon approval by ADEQ, recommended LUCs will be implemented.

YPG-13B
WASHPAD 1 CASTLE DOME HELIPORT

SITE DESCRIPTION

The site consists of what appears to be a helicopter tie down pad located on the south side of Bldg. 6071 in the Castle Dome Heliport Area. The pad measures approximately 25 feet by 25 feet and was used during the 1970s and 80s. Fuel/oil products potentially contaminated the soil immediately adjacent to the pad as the wash/rinse water drained off into the surrounding soil (USACHPPM 1997). FSP related sample activities included the collection of soil samples adjacent to the pad (Argonne July 2002). Arsenic, chromium, lead, iron, thallium, vanadium and zinc were determined to be present above background concentrations and have been evaluated in the risk refinement step (Argonne Feb 2003).

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals, Volatile Organics, Petroleum, Hydrocarbons

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI/FS	198811	200409
RA(C)	200402	200409

RC DATE: 200409

YPG-13B does not present a risk to ecological resources. The occupational use scenario to exposure has been completed. The refinement step for exposure scenarios has been re-analyzed. It has been determined that arsenic is the only constituent of potential concern that could represent a risk to human health. Because of the conservatively safe default assumption of 100% bioavailability, and the industrial use scenarios at AGY, the magnitude of the arsenic exceedances is not sufficient to warrant further analysis in a baseline assessment of arsenic risks to human health at these sites. Left implicit in the RI Report is AGY's position that the slight arsenic SRL exceedences do not warrant any further action other than LUCs.

CLEANUP STRATEGY

Site will be addressed by a multi-site LUC Decision Document. The DD is anticipated to be finalized by the end of FY06. Contingent upon approval by ADEQ, recommended LUCs will be implemented.

YPG-13C
WASHPAD 2 NORTH CASTLE DOME HELIPORT

SITE DESCRIPTION

The site consists of what appears to be a helicopter tie down pad located on the north side of Bldg. 6071 in the Castle Dome Heliport Area. The pad measures approximately 25 feet by 25 feet and was used during the 1970s and 80s. Fuel/oil products potentially contaminated the soil immediately adjacent to the pad as the wash/rinse water drained off into the surrounding soil (USACHPPM 1997). RI-related sample activities included the collection of soil samples adjacent to the pad, (Argonne July 2002). Arsenic, chromium, lead, iron, thallium, vanadium and zinc were determined to be present above background concentrations and have been evaluated in the risk refinement step (Argonne Feb 2003).

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI/FS	199811	200409
RA(C)	200402	200409

RC DATE: 200409

YPG-13C does not present a risk to ecological resources. The occupational use scenario to exposure has been completed. The refinement step for exposure scenarios has been re-analyzed.

It has been determined that arsenic is the only constituent of potential concern that could represent a risk to human health. Because of the conservatively safe default assumption of 100% bioavailability, and the industrial use scenarios at YPG, the magnitude of the arsenic exceedances is not sufficient to warrant further analysis in a baseline assessment of arsenic risks to human health at these sites. Left implicit in the RI Report is YPG's position that the slight arsenic SRL exceedences do not warrant any further action other than LUCs.

CLEANUP STRATEGY

Site will be addressed by a multi-site LUC Decision Document. The DD is anticipated to be finalized by the end of FY06. Contingent upon approval by ADEQ, recommended LUCs will be implemented.

YPG-13D
WASTE BASIN AT CASTLE DOME HELIPORT

SITE DESCRIPTION

This site consists of a waste basin located on the east side of Bldg 6071 in the Castle Dome Heliport Area. The basin measured approximately 5 feet by 25 feet and was 3 feet deep. Wastes associated with Castle Dome activities were reportedly dumped into the basin and allowed to dry and percolate into the soil. The site was used in the 70s and 80s (USACHPPM 1997). Geophysics has been conducted in an attempt to locate the basin. In addition, aerial photographs have been reviewed to identify the location of the basin. RI-related soil samples have been collected in the inferred location of the waste basin (Argonne July 2002). Arsenic, chromium, antimony, thallium, vanadium were evaluated in the risk refinement step (Argonne Feb 2003).

YPG-13D does not present a risk to ecological resources. The occupational use scenario to exposure has been completed. The refinement step for exposure scenarios has been re-analyzed.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Volatile Organics, Metals, Petroleum, Hydrocarbons

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI/FS	199811	200409
RA(C)	200402	200409

RC DATE: 200409

It has been determined that arsenic is the only constituent of potential concern that could represent a risk to human health. Because of the conservatively safe default assumption of 100% bioavailability, and the industrial use scenarios at YPG, the magnitude of the arsenic exceedances is not sufficient to warrant further analysis in a baseline assessment of arsenic risks to human health at these sites. Left implicit in the RI Report is YPG's position that the slight arsenic SRL exceedences do not warrant any further action other than LUCs.

CLEANUP STRATEGY

Site will be addressed by a multi-site LUC Decision Document. The DD is anticipated to be finalized by the end of FY06. Contingent upon approval by ADEQ, recommended LUCs will be implemented.

YPG-13E
SEPTIC TANK LEACHFIELD (E) KOFA BLDG. 3490

SITE DESCRIPTION

This site is located in the Kofa Range Area and consists of a leach field located south of Bldg 3490 and east of YPG-23. The leach field received wastes from Bldg 3490 that is known as the Vehicle Maintenance Facility. The operating dates of the septic tank leach field are unknown except that it was abandoned sometime in the 1980s. Sewage and light industrial wastes were probably discharged into the system (USAEHA 1988). The area in proximity to the leach field for YPG-13E is used as a staging area for military vehicles at the vehicle maintenance facility. As part of the SAP, soil samples were collected from 10 locations (Argonne July 2002). The septic tank was removed in April 2002.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: VOCs, SVOCs, Metals, PCBs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI/FS	199809	200409
RA(C)	200402	200409

RC DATE: 200409

Diesel range organics were found in one sample. Gasoline range organics were detected in all but one sample with concentrations estimated between 110 and 220 mg/kg. Arsenic, chromium, lead, thallium, and vanadium were evaluated in the risk refinement (Argonne February 2003).

YPG-13E does not represent a risk to ecological resources. The occupational use scenario to exposure has been completed. The refinement step for exposure scenarios has been re-analyzed.

It has been determined that arsenic is the only constituent of potential concern that could represent a risk to human health. Because of the conservatively safe default assumption of 100% bioavailability, and the industrial use scenarios at YPG, the magnitude of the arsenic exceedances is not sufficient to warrant further analysis in a baseline assessment of arsenic risks to human health at these sites. Left implicit in the RI Report is YPG's position that the slight arsenic SRL exceedences do not warrant any further action other than LUCs.

CLEANUP STRATEGY

Site will be addressed by a multi-site LUC Decision Document. The DD is anticipated to be finalized by the end of FY06. Contingent upon approval by ADEQ, recommended LUCs will be implemented.

YPG-13F
SEPTIC TANK LEACHFIELD BLDG 3021 LAAF

SITE DESCRIPTION

The site is a leach field located west of Bldg 3021 in the Laguna Army Airfield Area and covers an area about 60 feet by 90 feet. The leach field received wastes from Bldg 3021. The operation dates are unknown, except that it was abandoned in 1995 and covered over. Sewage and light industrial wastes were probably discharged into this system. Samples were collected from adjacent to the septic tank and from within the leach field (Argonne July 2002). Arsenic, iron, barium, thallium and vanadium were evaluated in the risk refinement (Argonne February 2003). YPG-13F does not present risks to either human health or the environment.

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STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Metals, Volatile Organics and PAHs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI	199811	200409
RA(C)	200402	200509

RC DATE: 200509

CLEANUP STRATEGY

In November 2004, a NFA decision document was submitted to USAEC. This document is expected to be finalized in 2006.

YPG-23
WASHRACK/LAGOON (WEST) AT KOFA BLDG 3490

SITE DESCRIPTION

Wastewater from a vehicle washrack was discharged to a lagoon for disposal. The lagoon was formerly located south and west of Bldg 3490 and is thus west of YPG 13E, the other SWMU located in proximity to Bldg 3490. The dates of operations for the washrack lagoon system are unknown, but the lagoon system was abandoned in 1976 and wastewater flow was rerouted to the present Kofa area sanitary wastewater treatment system at that time. The lagoon is currently covered over with fill and is used as a staging and parking area for equipment. The waste stream included solvents, POL, soaps, and domestic wastes. The SI recommended follow-up investigation for contaminants.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: None

MEDIA OF CONCERN: None

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI/FS	199811	200409
RA(C)	200402	200409

RC DATE: 200409

Soil samples were collected from the inferred location of the surface impoundment (Argonne July 2002). Arsenic, thallium, beryllium, chromium, lead, antimony, TPHs, Trichloroethylene, methyl chloride, and vanadium were evaluated in the refinement step (Argonne February2003).

YPG-23 does not represent a risk to ecological resources. The occupational use scenario to exposure has been completed. The refinement step for exposure scenarios has been re-analyzed.

It has been determined that arsenic is the only constituent of potential concern that could represent a risk to human health. Because of the conservatively safe default assumption of 100% bioavailability, and the industrial use scenarios at YPG, the magnitude of the arsenic exceedances is not sufficient to warrant further analysis in a baseline assessment of arsenic risks to human health at these sites. Left implicit in the RI Report is YPG's position that the slight arsenic SRL exceedences do not warrant any further action other than LUCs.

CLEANUP STRATEGY

Site will be addressed by a multi-site LUC Decision Document. The DD is anticipated to be finalized by the end of FY06. Contingent upon approval by ADEQ, recommended LUCs will be implemented.

YPG-25
SEPTIC TANK LEACHFIELD (NORTH) AT CDH

SITE DESCRIPTION

This site is located on the north end of the Castle Dome Heliport (CDH) Complex. The tank/leach lines have not been active since approximately 1960 when the CDH septic tank sewage lagoon was constructed. The YPG Department of Public Works (DPW) constructed an asphalt service road over the tank area, and now only a capped service pipe protrudes from the ground. Samples were collected as per the FSP (Argonne July 2002). Aluminum, arsenic, chromium, manganese, and lead were evaluated in the refinement step (Argonne February 2003). YPG-25 represents no risk to ecological resources. The occupational use scenario to exposure has been completed. The refinement step for exposure scenarios has been re-analyzed.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Inorganics, Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	197812	198812
RI/FS	199809	200409
RA(C)	200402	200409

RC DATE: 200409

It has been determined that arsenic is the only constituent of potential concern that could represent a risk to human health. Because of the conservatively safe default assumption of 100% bioavailability, and the industrial use scenarios at YPG, the magnitude of the arsenic exceedances is not sufficient to warrant further analysis in a baseline assessment of arsenic risks to human health at these sites. Left implicit in the RI Report is YPG's position that the slight arsenic SRL exceedences do not warrant any further action other than LUCs.

CLEANUP STRATEGY

Site will be addressed by a multi-site LUC Decision Document. The DD is anticipated to be finalized by the end of FY06. Contingent upon approval by ADEQ, recommended LUCs will be implemented.

YPG-26
SEPTIC TANK LEACHFIELD (SOUTH) AT CDH

SITE DESCRIPTION

Site is located on the south end of the CDH Complex. The tank/leach lines have probably not been active since the CDH septic tank sewage lagoon was constructed in approximately 1960. All sewage waste now flows to the CDH Sewage Treatment Lagoon to the west. The tank is reported to be of stainless steel construction. Samples were collected from the area in proximity to the septic tank and from the leach field. After comparison to background study results, arsenic, beryllium, chromium, cobalt, lead, methylene chloride, thallium and vanadium were evaluated in the refinement step (Argonne February 2003). The septic tank was removed in April 2002.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Metals, VOCs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI/FS	199811	200409
RA(C)	200402	200409

RC DATE: 200409

YPG-26 represents no risk to ecological resources. The occupational use scenario to exposure has been completed. The refinement step for exposure scenarios has been re-analyzed.

It has been determined that arsenic is the only constituent of potential concern that could represent a risk to human health. Because of the conservatively safe default assumption of 100% bioavailability, and the industrial use scenarios at AGY, the magnitude of the arsenic exceedances is not sufficient to warrant further analysis in a baseline assessment of arsenic risks to human health at these sites. Left implicit in the RI Report is YPG's position that the slight arsenic SRL exceedences do not warrant any further action other than LUCs.

CLEANUP STRATEGY

Site will be addressed by a multi-site LUC Decision Document. The DD is anticipated to be finalized by the end of FY06. Contingent upon approval by ADEQ, recommended LUCs will be implemented.

YPG-31
WEST ENVIRONMENTAL TEST AREA

SITE DESCRIPTION

This site is located 2.3 miles north of Phillips Drop Zone. It is enclosed by an 8 feet tall, chain-link fence and covers an area of 3,000 feet by 2,100 feet. At this location, environmental testing of CWA and munitions and assorted military material was conducted from the 1950s until 1969. In addition, a single disposal operation occurred at the termination of CWA testing.

A historical record search, aerial photographic review, and an investigation using geophysics and soil gas sampling techniques were conducted in two areas where CWA-testing and the disposal operation occurred in the past. CWA-degradation compounds were detected in soil gas samples collected from what is inferred to be (based upon geophysics and aerial photographic interpretation) areas used for the one time disposal of equipment used for CWA related tests (Argonne March 2004). VOCs were also detected in soil gas samples collected from the northern section of the site. LUCs were completed, and included signage around the building and the existing engineering controls (fence) will continue to be maintained.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Not Evaluated

CONTAMINANTS OF CONCERN: CWA, Breakdown Products, Volatile Organics, Metals, Explosive Related Compounds

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI	199708	200409
RA(C)	200402	200409
LTM	200410	202909

RC DATE: 200409

In 2005, MPA was detected in all of the groundwater samples collected from YPG-31 and YPG-32, including blanks, but the detections were at levels below the reporting limit, i.e. they were estimated concentrations. Further investigation by Argonne's Quality Assurance Officer during an annual laboratory audit found that there is another compound with a similar retention time that can act as a surrogate for MPA at low concentrations. As MPA has not been detected in two subsequent sampling events, it is believed that the detections in 2005 were false positives. In 2006, all CWA samples will be split between two different laboratories as an additional quality assurance check.

CLEANUP STRATEGY

Review and approve decision document and implement recommended LUCs. Existing well (closest production well) will continue to be sampled in accordance with the decision document. One additional well will be installed (funded in FY06) and monitored quarterly for one year and then semi annually until 2009 and then annually. Should a sample show CWA-degradation compounds the monitoring plan may change. Reporting will initially include a semi-annual letter report of analytical results, followed by an annual detailed report of on-site activities.

YPG-32
FORMER WASTE DISPOSAL AREA

SITE DESCRIPTION

The Chemical Agent Disposal Area site is located 1/2 mile north of the West Environmental Test Area site on the Cibola Testing Range. The site occupies about 4.7 acres and is surrounded by a 6 foot chain link fence with three strand barbed wire on top. The site is currently administered under strict LUC procedures including physical controls, a fence and gate, and existing YPG dig permit requirements. It consists of a number of, now buried disposal pits used for material disposal. The site was used from the early 1950's until late 1969 for disposal of decontaminated chemical agent wastes from environmental and purity analysis testing at the Old Chemical Laboratory (Building S-2500, YPG-01) and rocket-firing tubes used for chemical ammunition. The area and disposal pits, though "cleared" by previous investigations, required re-evaluation. The soil of one pit has discolored soil on the surface that could be associated with CWA decontamination activities. Three monitoring wells have been installed. No CWA-degradation compounds have been detected in the wells for all sampling episodes in 2001 through 2005. LUCs were completed.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: CWA, Breakdown Products, Volatile Organics

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI	199708	200509
IRA	199904	200409
RA(C)	200402	200509
LTM	200509	202909

RC DATE: 200509

CLEANUP STRATEGY

Review and approve the decision document. Existing wells will continue to be sampled in accordance with the decision document. Should a sample show CWA-degradation compounds the monitoring plan may change. Reporting will include a semi-annual letter report of analytical results, followed by annual detailed report of on-site activities.

YPG-37

77TH EXPLOSIVE ORDNANCE DEMOLITION AREA

SITE DESCRIPTION

The 77th Explosive Ordnance Disposal activity operated from 1973 to 1979 at this location approximately 4 miles north of Phillips Drop Zone in the Cibola Range area. The site is currently administered under strict LUC procedures including physical controls, a fence and gate, and existing AGY dig permit requirements. An open pit or a number of open pits were used for the detonation of munitions and ordnance from on and off the installation. The site is about 7 acres. Representatives of the AGY ammunition recovery unit assisted in the execution of the AGY IRP field-sampling program. The inferred location(s) of the pits were sampled in February 2000 (Argonne 2004). After comparison to background study results, arsenic, chromium, thallium and vanadium were evaluated further in the RI Report (Argonne 2004). Arsenic, thallium, and vanadium may represent a potential risk to ecological resource. There does not appear to be a risk to human health.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Low

CONTAMINANTS OF CONCERN: Heavy Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	197810	197812
SI	198808	198808
RI	199809	200509
RA(C)	200502	200509

RC DATE: 200509

YPG-45
BUILDING 506 UST FUEL RELEASE

SITE DESCRIPTION

The Bldg 506 site is located at the Main Administrative Area. Leaking, heating-fuel, underground storage tanks were replaced in 1989. Remedial investigation by drilling and soil analyses was completed in 1991. An interim remedial action, including asphalt capping and monitoring instrumentation, was conducted in 1992. In 1995, the YPG DPW removed the capping for the purpose of building & grounds beautification. Groundwater is approximately 50 feet below ground surface. Lysimeters installed during 1992 were sampled in December of 1998 and revealed volatile organics and petroleum hydrocarbons just slightly above background concentrations.

Soil vapor wells were installed and sampled in 2000 and 2003. Soil samples have also been collected from the former location of the leaking UST (Argonne 2004). Two polynuclear aromatic hydrocarbons, and petroleum hydrocarbons have been identified as contaminants of potential concern. Groundwater is not contaminated at the site. There are no complete exposure routes to human or ecological receptors. ADEQ requested the full evaluation of remedial alternatives for the site. These are described in the Final Focused Feasibility Study for Subsurface Soil at the Building 506 which was submitted in July 2005 and is pending approval. A draft decision document was prepared and sent to USAEC.

STATUS

REGULATORY DRIVER: CERCLA

RRSE: Medium

CONTAMINANTS OF CONCERN: VOCs, PAHs

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	198903	198903
SI	198911	199105
RI	198911	200509
IRA	199201	199211
RA(C)	200403	200509
LTM	200509	203509

RC DATE: 200509

CLEANUP STRATEGY

The Final FFS recommends capping (funded FY05), groundwater monitoring and maintenance of existing LUCs. Complete the FFS and continue to sample four groundwater monitoring wells semi-annually. LUCs will be implemented. The DD is anticipated to be finalized by the end of 2006. Contingent upon approval by ADEQ, recommended LUCs will be implemented.

IRP No Further Action Sites Summary

AEDB-R #	Site Title	Documentation/Reason for NFA	NFA Date
YPG-04	Petroleum Laboratory (Bldg. S-2060)	RCRA Facility Assessment, US AGY Final Report, USEPA Region 9, 1999-Apr /Not Eligible For ER,A Funding	198808
YPG-05	55 Gal. POL Storage at Petroleum Lab	RCRA Facility Assessment, US AGY Final Report, USEPA Region 9, 1999-Apr /Not Eligible For ER,A Funding	198808
YPG-06	OB/OD New Demo Area-Kofa East	This site is active and is addressed in the current RCRA Part B Permit Application/Not Eligible For ER,A Funding	199703
YPG-07	Mobility Range (General)	Site is Active. Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding	199703
YPG-08	Rad Storage at X-ray Facility (Bldg. 3493)	RCRA Facility Assessment, US AGY Final Report, USEPA Region 9, 1999-Apr /Not Eligible For ER,A Funding	198808
YPG-09	Rad Storage Site (Bldg. 3557)	This site is active and not eligible for IRP funding/Not Eligible For ER,A Funding	199006
YPG-12	Pesticide Mix/Storage Facility (Bldg. 416)	RCRA Facility Assessment, US AGY Final Report, USEPA Region 9, 1999-Apr /Not Eligible for ER,A Funding	199703
YPG-13A	Septic Tank Lagoon Castle Dome Heliport	Site is Active- Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding	200101
YPG-15	Raw Sewage Lagoon System-Main Post	Site is active- Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding	199703
YPG-20	Lagoon at Mobility Test Area	Site is active- Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding	199703
YPG-21	Imhoff Tank at Mobility Test Area Lagoon	Site is active- Management Guidance for the Defense Environmental Restoration Program as amended /Not Eligible For ER,A Funding	199703

IRP No Further Action Sites Summary

AEDB-R #	Site Title	Documentation/Reason for NFA	NFA Date
YPG-24	Raw Sewage Lagoons at Kofa Range	Site is active- Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding	199703
YPG-27	Landfill 5 KM S-SE of Main Post	This site was transferred to the Compliance-Related Cleanup Program/Not Eligible For ER,A Funding	198808
YPG-28	Landfill 3 KM East of Main Post	This site was transferred to the Compliance-Related Cleanup Program and site investigation was funded in FY2006./ Not Eligible For ER,A Funding	198808
YPG-29	Landfill East of Rte. 95, 2 KM W of Kofa Range	This site was transferred to the Compliance-Related Cleanup Program and site investigation was funded in FY2006 / Not Eligible For ER,A Funding	198808
YPG-30	Landfill 4 KM NW of Kofa Range	This site was transferred to the Compliance-Related Cleanup Program and site investigation was funded in FY2006/Not Eligible For ER,A Funding	199703
YPG-33	Test Site 8 KM W of Rte. 95, 4.4 KM SW Cibola Road	There was no study performed on this site. The site is an inactive landfill./Not Eligible For ER,A Funding	199703
YPG-34	Test Site NE of Chemical Agent Disposal Area	This site is an active range./Not Eligible For ER,A Funding	199703
YPG-35	Old Demo Area (N Base of Muggins Mountains)	This site was transferred to the Compliance-Related Cleanup Program /Not Eligible For ER,A Funding	199703
YPG-38	Lead Arsenate Site	Correspondence 12/4/1996 From P. Perry ADEQ to C. Botdorf, Re Meeting and Site Visit at AGY November 6, 1996. /All Required Cleanup(s) Completed	199403
YPG-39	Kofa Range (Impact Area)	This is an active range. Correspondence 12/4/1996 From P. Perry ADEQ to C. Botdorf, Re Meeting and Site Visit at YPG November 6, 1996. /Not Eligible For ER,A Funding	199703
YPG-40	Pyrotechnic Range (Impact Area)	This site is an active range. Correspondence 12/4/1996 From P. Perry ADEQ to C. Botdorf, Re Meeting and Site Visit at AGY November 6, 1996. /Not Eligible For ER,A Funding	199703

IRP No Further Action Sites Summary

AEDB-R #	Site Title	Documentation/Reason for NFA	NFA Date
YPG-41	Cibola Range (Impact Area)	This is an active range. Management Guidance for the Defense Environmental Restoration Program as amended and Correspondence 12/4/1996 From P. Perry ADEQ to C. Botdorf, Re Meeting and Site Visit at AGY November 6, 1996 /Not Eligible For ER,A Funding	199703
YPG-43	Former Fire Training Pit	This site was closed under the Arizona Aquifer Protection Program. Correspondence, 8/19/1999 From Richard Herring to C. Botdorf, Re AGY Fire Training Facility Aquifer Protection Permit (APP) Application Completeness Review/Not Eligible For ER,A Funding	199909
YPG-44	Ammunition Deflagration Site	Site is active- Management Guidance for the Defense Environmental Restoration Program as amended/Not Eligible For ER,A Funding	199703

Initiation of IRP: 1978

Past Phase Completion Milestones

1978
- Initial Installation Assessment

1988
- Update of Installation Assessment July
- Preliminary Assessment/Site Inspection (PA/SI) August

Projected Record of Decision (ROD)/DD Approval Dates: 2006

Schedule for Next Five Year Review: 2010

Estimated Completion Date of IRP (including LTM phase): Indefinite

US ARMY GARRISON YUMA IRP SCHEDULE

(Based on current funding constraints)

AEDB-R#	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
YPG-01	LTM									202909
YPG-10	RA(O)									202109
YPG-31	LTM									202909
YPG-32	LTM									202909
YPG-45	LTM									203509

Prior Years Funds

Total Funding up to FY04: $9,770K

Year	Site Information	Expenditures	FY Total
FY05	YPG-01 LTM	$ 30.38K	
	YPG-10 RA(O)	$ 125.0K	
	YPG-10 RA(C)	$ 144.36K	
	YPG-31 LTM	$ 12.14K	
	YPG-32 RI	$ 25.0K	
	YPG-45 RI	$ 45.12K	**$382.0K**

Total Prior Year Funds: **$382.0K**

Current Year Requirements

Year	Site Information	Expenditures	FY Total
FY06	YPG-01	$ 30.0K	
	YPG-10	$ 416.0K	
	YPG-31	$ 104.0K	
	YPG-32	$ 21.0K	
	YPG-45	$ 67.0K	**$638.0.0K**

Total Future Requirements: **$5,079K**

Total IR Program Cost *(from inception to completion of the IRP):* **$15,869K**

US ARMY GARRISON YUMA

Military Munitions Response Program

MMRP Summary

Total AEDB-R MMRP Sites / AEDB-R sites with RC: 2/1

AEDB-R Site Types
2 Firing Range

Most Widespread Contaminants of Concern: Metals, MEC, MC

Media of Concern: Soil

Completed REM/IRA/RA:
None

Total MMRP Funding

Prior years (up to FY05):	$ 435,300
Current Year (FY06):	$ 0
Future Requirements (FY07+):	$8,432,000
Total:	$8,867,300

Duration of MMRP
Year of MMRP Inception: 2002
Year of MMRP RIP/RC: 2014
Year of MMRP Completion Including LTM: 2047

MMRP Contamination Assessment Overview

The former Mortar Impact Area consists of approximately 625 acres and is located in the southwestern portion of YPG. The northwestern portion of the Mortar Impact Area encompasses two additional range areas including a Pistol Range and a former recreational skeet range. During the visual survey performed during the SI, an additional suspected pistol range was identified.

The former Mortar Impact Area encompassed a portion of the current housing area and undeveloped land. Additionally, a photovoltaic solar power collection panel farm, an observatory, and an open storage area are within the boundaries. A nature trail and jogging trail also traverse the eastern portion of this area.

With the exception of the 56-acre housing area, solar panel farm and open storage area, the majority of the former Mortar Impact Area is undeveloped. Current activities include residential area activities (i.e., recreation, gardening, lawn maintenance, playgrounds, etc.), authorized YPG personnel working at the photovoltaic solar power collection panel farm and open storage areas, and recreational activities involving jogging and nature trails. However, the majority of the area is undeveloped and does not see regular activity.

Depth to groundwater within the former Mortar Impact Area ranges from approximately 30-40 feet below ground surface. The Colorado and Gila Rivers replenish the groundwater in the Yuma region, whereas precipitation and runoff are minor sources of groundwater recharge. The intermittent wash within the former Mortar Impact Area is part of the drainage of the Colorado River, which is located approximately 2,500 feet east of the former Mortar Impact Area. The Gila Gravity Main Canal is also approximately 1,700 feet east of the former Mortar Impact Area.

Based on visual observations and the results of the geophysical and visual surveys, it appears that MEC density was greater in the central and eastern portions of the former Mortar Impact Area with no observed MEC in the western portion of the site. The geophysical data indicate the likelihood of subsurface metallic debris, particularly near visible impact craters. The overall densities of the goephysically-identified targets are low, but they are present in most of the areas surveys and it is likely that most of the targets are MEC related.

Trace amounts of explosives were detected in 22 of the 54 soil samples collected during the SI; however, all concentrations were below the ADEQ soil remediation levels. The only constituents with concentrations above the screening criteria were arsenic and iron. However, these elevated concentrations are expected to be naturally occurring and not the result of military munitions used at the site.

The primary transport mechanisms identified during the SI include erosion and surface water runoff. Erosion could be a factor in exposing buried MEC. Surface water runoff could contribute to transporting and migrating potential munitions constituent contaminated soil to surface water bodies. Due to the arid climate and the fact that the potential

contaminants have a relative low mobility for downward migration, subsurface and groundwater impacts are anticipated to be negligible.

MMRP Cleanup Exit Strategy

During the SI phase conducted in FY05, it was decided to combine the two MMRP sites, so YPG-001-R-01 was listed as closed in March of 2005 and all MMRP issues will be addressed under YPG-002-R-01. The recommendation of the SI was to further evaluate the site with a RI to identify the nature and extent of the MEC in the area. A soil removal may be required along with institutional and LUCs. Long term monitoring will also likely be required.

US ARMY GARRISON YUMA

Military Munitions Response Program Site Descriptions

YPG-002-R-01
MORTAR IMPACT AREA A AND B

SITE DESCRIPTION

The former Mortar Impact Area consists of approximately 625 acres and encompasses the current housing area and undeveloped land. Two historic ranges were identified within the boundaries of the former Mortar Impact Area: a recreational skeet range and a pistol range.

It is believed that the Mortar Impact area was most likely used between 1942 and 1945 as part of the California-Arizona Maneuver Area and may have been used even after these dates. According to Certificates of Clearance from 1950 and 1953, 60-millimeter (mm) high explosive mortars, 81-mm high explosive light mortars, 75-mm high explosive duds, 57-mm shot, 3.5-inch rockets, rifle grenades, and hand grenades have been removed from the site.

The Pistol Range, located within the northwest portion of the former Mortar Impact Area, consists of approximately 0.333 acres and was used for small arms target practice and qualification beginning in 1952. The range operations ceased between 1964 and 1977.

The recreational skeet range was comprised on 0.121 acres located in the north-central portion of the Mortar Impact Area, where a photovoltaic solar power collection panel farm currently lies. The skeet range was constructed in 1962 and operated until the 1970s.

A SI was conducted in December 2004, including a limited geophysical and visual survey and collection of soil samples. The results were evaluated in the final SI report dated June 2005.

STATUS

REGULATORY DRIVER: CERCLA

RAC SCORE: 2 - Serious Risk

CONTAMINANTS OF CONCERN: MEC, MC, Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
PA	200201	200305
SI	200309	200507
RI	200710	200909
RD	201210	201304
RA(C)	201305	201409
LTM	201710	204709

RC DATE: 201409

CLEANUP STRATEGY

Complete an RI/FS and implement the recommended remedial actions. It is anticipated that a soil removal will need to be completed with long term monitoring of the site.

MMRP No Further Action Sites Summary

AEDB-R #	Site Title	Documentation/Reason for NFA	NFA Date
YPG-001-R-01	Mortar Impact Area A	This site was incorporated into YPG-002-R-01 and made response complete. /Other	200503

MMRP Schedule

Initiation of MMRP: 2002

Past Phase Completion Milestones

2005
- Installation-wide SI

Projected ROD/DD Approval Dates: 2009

Projected Construction Completion: 2014

Schedule for Five Year Reviews: Unknown

Estimated Completion Date of MMRP including LTM: 2047

US ARMY GARRISON YUMA MMRP SCHEDULE

(Based on current funding constraints)

AEDB-R#	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
YPG-002-R-01	RI/FS									
	RD									
	RA(C)									
	LTM									*204709*

Prior Years Funds

Total Funding up to FY04: $424K

Year	Site Information	Expenditures	FY Total
FY05	SI at all sites	$ 11.3K	$ 11.3K

Total Prior Year Funds: **$435.3K**

Current Year Requirements

Year	Site Information	Expenditures	FY Total
FY06			$ 0K

Total Future Requirements: **$8,432.0K**

Total IR Program Cost *(from inception to completion of the IRP):* **$8,867.3K**

A. Status of Community Involvement
Army guidance has recommended the establishment of Restoration Advisory Boards (RABs) for all installations.

B. Determining Interesting in Establishing a RAB
YPG went through the process of determining interest in establishing a RAB in FY99. YPG determined that there is insufficient interest in the local community to establish a RAB. YPG prepared a draft Community Involvement Plan in April 2000 and a draft brochure for public mailing in July 2000. There has been no community response to the draft plan and brochure. Information repositories have been created at the YPG library and at the Yuma Public Library. YPG will sample for community interest in 2006.